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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,360	08/21/2003	Robert Winston Nowlin	10205.042	7470

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EXAMINER	
HAROON, ADEEL	
ART UNIT	PAPER NUMBER
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/645,360	NOWLIN ET AL.	
	Examiner	Art Unit	
	Adeel Haroon	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Amendment filed on date: 10/27/06. Claims 1-10 are still pending.

Response to Arguments

2. Applicant's arguments filed 10/27/06 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the present situation, the Swaminathan et al. reference was used to teach the concept of comfort noise generation for a wireless telephone (Abstract), and the Uchino et al. reference was used to teach generating background noise in accordance with the magnitude of the signal (Paragraph 457). The examiner then contended that it would be obvious to one of ordinary skill in the art to apply the teaching of generating background noise as taught by Uchino et al. in the telephone of Swaminathan et al.

since it already has a comfort noise generating means in order to generate noise signal "having a characteristic along the power spectrum density distributions of the frequency fluctuations" (Uchino et al.: Paragraph 478). In other words, one would be motivated to incorporate Uchino et al.'s teaching in order to generate a noise signal that corresponds to the magnitudes of the different frequency sub-bands thus resulting in a more consistent result when coupled to the transmit or receive channel.

The applicant also argues that Uchino et al. do not disclose a method providing a noise signal in a digital communication system. The examiner respectfully disagrees. As can be seen by figure 1, Uchino et al. disclose a transmission unit, 40, and reception unit, 41, over a digital line, 1, which constitutes a digital communication system. Figure 5 further shows the noise signal from noise generating means 25 being coupled to the transmission channel with adder 29 since the signal is being sent to the transmission unit 40. Therefore, Uchino et al. clearly disclose a method of providing noise signal in a digital communication system. What exactly the digital line is comprised of is not relevant since the digital line being a wireless line for a cellular telephone was already established by the Swaminathan et al. reference in the rejection.

The applicant further argues that Uchino et al. do not disclose that "the magnitudes of the white noise into each QMF filter is controlled in accordance with the magnitude of the signal in the corresponding sub-band in the one channel". The examiner respectfully disagrees. The examiner again asserts that paragraph 457 of Uchino et al. disclose this limitation. Paragraph 457 states that "The weighting coefficients $\sigma 1 - \sigma 13$ have values proportional to the square roots of magnitudes of

spectra in the respective bands of the power spectrum density distribution". This proportionality relationship is interpreted as equivalent to the cited limitation since the weighting coefficients are set in accordance to the magnitude of the spectra/sub-bands.

Consequently, all rejections are deemed proper and are maintained.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swaminathan et al. (U.S. 5,630,016) in view of Uchino et al (U.S. 2003/006362).

With respect to claim 1, Swaminathan et al. disclose a method of providing a comfort noise signal in a digital telephone having a receive channel and transmit channel in order "to provide background noise for discontinuous transmission and receiving systems during periods of voice inactivity that has the attributes of background noise during periods of voice activity" (Column 1, lines 14-19 and Column 2, lines 14-19). Swaminathan et al. do not disclose using sub-band filters and apply noise in accordance with magnitude of the signal in the sub-band. However, Uchino et al.

disclose a method for providing a noise signal in a digital communication system. Uchino et al. discloses generating a white noise signal (Paragraph 114). Uchino et al. also disclose applying the white noise to a QMF filter bank, element number 56, to produce a comfort noise signal (Paragraph 472), wherein the magnitude of the white noise into each QMF filter is controlled in accordance with the magnitude of the signal in a corresponding sub-band in the one channel (Paragraph 457). Uchino et al. further disclose selectively coupling the comfort noise to the channel (Paragraphs 115-147). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Uchino et al.'s method of generating noise in the telephone of Swaminathan et al. in order to generate a noise signal that fluctuates along the power spectrum density distribution characteristic of the frequency fluctuations of the receive or transmit channel (Paragraph 478).

With respect to claim 2, Uchino et al. also disclose coupling a white noise signal through a first and second multipliers, element number 55, to the low pass and high pass input of a QMF bank respectively in figures 23 and 24 (Paragraphs 456-457, 472). Uchino et al. further disclose controlling the gain of the multipliers, element number 54, with the magnitude of the sub-band analysis where the first sub-band has a lower frequency than the second sub-band (Paragraphs 456-457).

With respect to claim 3, Uchino et al. do not expressly disclose combining the output signals from two or more of the sub-band filters. However, this combination results only in a wider bandwidth sub-band filter, which controls the multiplier's magnitude. Since Uchino et al. teach that the bandwidth of the sub-band filters as a

range (Paragraph 442), it would be obvious to one of ordinary skill in the art at the time of the applicant's invention, to combine the outputs of the sub-band filters resulting in a wider bandwidth sub-band filter in order to have a wider bandwidth for the sub-band filter.

With respect to claims 4 and 5, Uchino et al. further disclose n sub-bands with no more than (n-1) QMF banks, element number 57, that are upwardly cascaded to increase the low frequency resolution of the comfort noise in figure 27 (Paragraph 472).

With respect to claim 6, Swaminathan et al. disclose a cellular telephone having an antenna, an RF stage, and signal processing circuit having an audio processor having a receive and transmit channel in figures 1 and 2. Swaminathan et al. further disclose a comfort noise generator, element number 76 (Column 4, lines 57-59). Swaminathan et al. do not disclose using sub-band filters and applying noise in accordance with magnitude of the signal in the sub-band. However, Uchino et al. disclose a digital communication system method, which has noise generating means. Uchino et al. discloses a device having a receive channel and a transmit channel in figure 1. Uchino et al. disclose a plurality of analysis sub-band filters band (Paragraph 452). Uchino et al. disclose a comfort noise generator including a white noise generator, element number 25 (Paragraph 114). Uchino et al. also disclose coupling the white noise signal through a first and second multipliers, element number 55, to the low pass and high pass input of a QMF bank respectively in figures 23 and 24 (Paragraphs 456-457, 472). Uchino et al. further disclose controlling the gain of the multipliers, element number 54, with the magnitude of the sub-band analysis (Paragraphs 456-457). Uchino

et al. further disclose means for selectively coupling the comfort noise to the channel (Paragraphs 115-147). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Uchino et al.'s method of generating noise in the telephone of Swaminathan et al. in order to generate a noise signal that fluctuates along the power spectrum density distribution characteristic of the frequency fluctuations of the receive or transmit channel (Paragraph 478).

With respect to claim 7, Uchino et al. further disclose n sub-bands with no more than (n-1) QMF banks, element number 57, that are upwardly cascaded in figure 27 (Paragraph 472).

With respect to claim 8, Uchino et al. do not expressly disclose combining the output signals from two or more of the sub-band filters. However, this combination results only in a wider bandwidth sub-band filter, which controls the multiplier's magnitude. Since Uchino et al. teach that the bandwidth of the sub-band filters as a range (Paragraph 442), it would be obvious to one of ordinary skill in the art at the time of the applicant's invention, to combine the outputs of the sub-band filters resulting in a wider bandwidth sub-band filter in order to have a wider bandwidth for the sub-band filter.

With respect to claim 9, Uchino et al. further disclose n sub-bands with no more than (n-1) QMF banks, element number 57, that are upwardly cascaded in figure 27 (Paragraph 472).

With respect to claim 10, Uchino et al. do not expressly disclose the number of the QMF banks is (n/2 –1). However, since the summation of the sub-bands filters only

resulted in a wider sub-band filter, the combination is treated as one sub-band filter. Therefore, the expression (n/2-1) is interpreted as one less QMF bank than the number of sub-band filter, which Uchino et al. teaches in figure 27 (Paragraph 472).

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adeel Haroon whose telephone number is (571) 272-7405. The examiner can normally be reached on Monday thru Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH
12/19/06